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23 November 1981

Worldwide Report

NUCLEAR DEVELOPMENT AND PROLIFERATION

No. 123

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BRIEFS

ROK IMPORTS NIGER URANIUM--The government will consider imports on Niger uranium after 1985 to meet its uranium requirements for the 1990's, Energy-Resources Minister Pak Pong-hwan said yesterday. Pak disclosed this possibility when he met with Daouda Diallo, minister of foreign affairs and cooperation of Niger, at his office yesterday. During the Pak-Diallo meeting, the visiting Niger minister requested Pak to help Korea import uranium, some 60 percent of Niger's total exports. The Niger leader also asked Pak to extend positive cooperation in exploring and developing uranium reserves in the African country, according to an announcement released by the Energy-Resources Ministry. In reply, Pak said the nation had already secured a long-term supply of uranium which would meet its needs in the early 1990's. However, the government will study a plan to get Niger uranium after 1985 in order to improve binational relations. The energy minister also expressed willingness to help the nation provide technology to Niger for uranium exploration. The announcement quoted Minister Pak as requesting Diallo to exercise his influence for Korea's participation in Niger's various projects involving agriculture and construction. [Text] [SK310236 Seoul THE KOREA TIMES in English 31 Oct 81 p 7]

CSO: 5100/2029

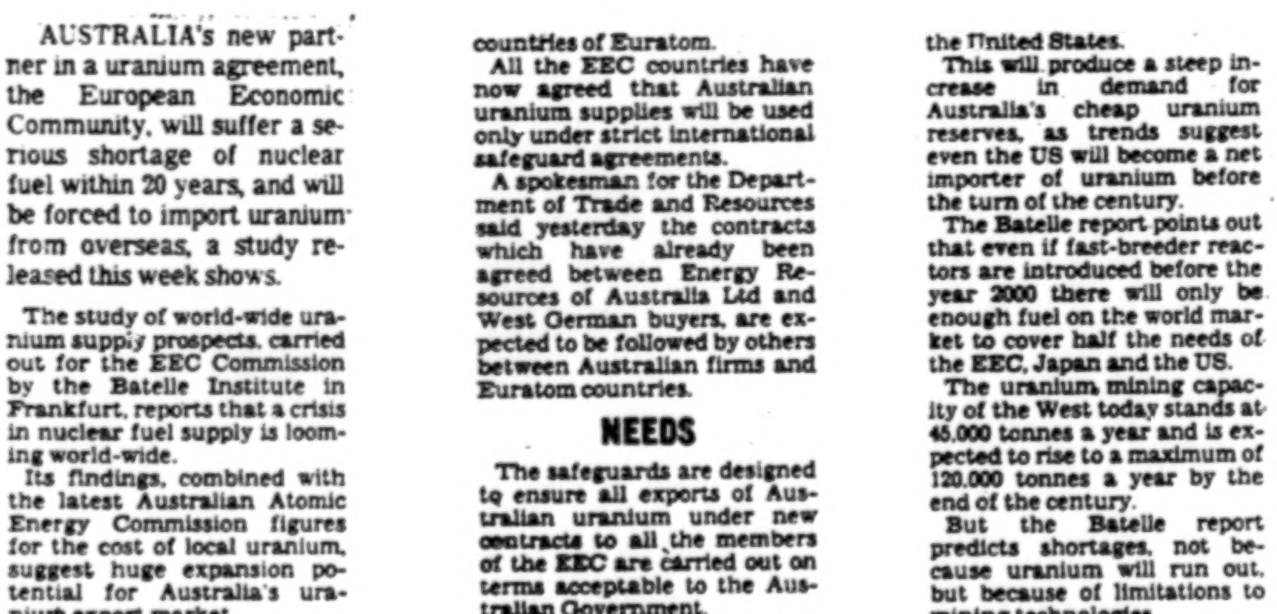
AUSTRALIA

EEC WILL BECOME BIG MARKET FOR LOCAL URANIUM EXPORT

Canberra THE AUSTRALIAN in English 30 Sep 81 p 29

[Article by Nicholas Rothwell]

[Text]



AUSTRALIA's new partner in a uranium agreement, the European Economic Community, will suffer a serious shortage of nuclear fuel within 20 years, and will be forced to import uranium from overseas, a study released this week shows.

The study of world-wide uranium supply prospects, carried out for the EEC Commission by the Batelle Institute in Frankfurt, reports that a crisis in nuclear fuel supply is looming world-wide.

Its findings, combined with the latest Australian Atomic Energy Commission figures for the cost of local uranium, suggest huge expansion potential for Australia's uranium export market.

Australia made an agreement on nuclear fuel supplies with the European Atomic Energy Community earlier this month in Brussels, which will pave the way for sales of Australian uranium to member countries of Euratom.

All the EEC countries have now agreed that Australian uranium supplies will be used only under strict international safeguard agreements.

A spokesman for the Department of Trade and Resources said yesterday the contracts which have already been agreed between Energy Resources of Australia Ltd and West German buyers, are expected to be followed by others between Australian firms and Euratom countries.

NEEDS

The safeguards are designed tq ensure all exports of Australian uranium under new contracts to all the members of the EEC are carried out on terms acceptable to the Australian Government.

The EEC's need for uranium fuel to supply its nuclear power program is expected to become acute within the next few years because of a delay in the development of fuel reprocessing plants in Europe and the United States.

This will produce a steep increase in demand for Australia's cheap uranium reserves, as trends suggest even the US will become a net importer of uranium before the turn of the century.

The Batelle report points out that even if fast-breeder reactors are introduced before the year 2000 there will only be enough fuel on the world market to cover half the needs of the EEC, Japan and the US.

The uranium mining capacity of the West today stands at 45,000 tonnes a year and is expected to rise to a maximum of 120,000 tonnes a year by the end of the century.

But the Batelle report predicts shortages, not because uranium will run out, but because of limitations to mining technologies.

It says the industry's output will fall and costs of nuclear fuel will rise as the uranium content of ores still available will be low.

It pinpoints 1995 as the crucial year for the EEC.

CSO: 5100/7505

AUSTRALIA

EDITORIAL CALLS FOR WESTERN VIGILENCE, DISARMAMENT PACT

Canberra THE AUSTRALIAN in English 2 Oct 81 p 8

[Editorial: "Why the West Must Not Throw in the Towel"]

[Text]

THIS week's report by the Pentagon claiming a dramatic growth in Soviet military power must frighten all of us. It is not news that the Warsaw Pact is stonger in conventional weapons than NATO's European armies. What is news is the Pentagon's assessment that qualitatively the East Bloc forces are gaining on those of the West. Previously the Atlantic powers could console themselves that their numerical inferiority was redressed by the superior sophistication of their equipment. Apparently this is ceasing to be the case, as is shown by the estimate that within seven years the US will have lost its lead in microelectronics, computers and jet engines.

According to the US Defence Secretary, Soviet nuclear planning is directed towards "seizing the initiative through pre-emptive attack". Apart from the burgeoning Soviet nuclear arsenal, Mr Weinberger claims that the Russians and their Warsaw Pact allies now have the advantage in conventional forces and that "modern tanks, armored fighting vehicles, artillery rocket launchers, anti-aircraft artillery, missiles and other weapons now being fielded in large quantities are the result of an intensive multi-year investment program."

It is not necessary to be clairvoyant to predict that Mr Weinberger's warning will be explained by his critics as the result of his right-wing Cold War mentality or the hyperbole of a cabinet member trying to expand his empire. Those who hold these comforting thoughts should remind themselves that much the same assessment as that of Wsahington has already been made by the Socialist President of France and the Social Democratic Chancellor of West Germany. Two weeks ago the French Prime Minister, Pierre Mauroy, told his country's national defence institute that France "must modernise its strategic nuclear force and its tactical nuclear armaments – without discarding *a priori* the possibility of the neutron bomb."

Although the Communist members of his government have apparently gone along with the French Government's defence policy, one can confidently predict that any attempt by Western countries to increase their military strength will be greeted with massive protests, a luxury unavailable to those citizens of "socialist" countries who are worried about the arms race. Despite these protests the West cannot allow itself to be weaker militarily than the Warsaw Pact. If you wonder why, the answer can be found in Afghanistan, Czechoslovakia and Hungary.

A worldwide enforceable disarmament agreement is now more essential to humanity's survival than ever before. A temporary reprieve will be the only result of our throwing in the towel.

CSO: 5100/7505

BRIEFS

KERALA URANIUM FIND--Trivandrum, Sept. 26--An exploratory study has revealed the presence of uraninite, a uranium-bearing mineral, in parts of Trivandrum district. The study, jointly conducted by the Centre for Earth Science Studies (CESS), Trivandrum and Kerala Minerals Exploration and Development Project, had indicated the presence of uraninite in at least four places--Kazhakuttom, Thiruvallom, Venjaramood and Varkala. Prof. C. Karunakaran, CESS Director, told PTI that it was the first time that indication of the presence of uranium in Kerala had been received. The presence of uraninite was detected during a radiometric survey of radio-active minerals with jeep-borne gamma ray spectrometers, he said.--PTI. [Text] [Madras THE HINDU in English 27 Sep 81 p 1]

RADIATION LEAK CLOSES POWERPLANT--New Delhi, 26 Oct (AFP)--A serious leak in one of the units of the atomic power plant in Rajasthan state, about 400 km (250 miles) south of here, has led to its closure, it was reported today. PRESS TRUST OF INDIA (PTI) news agency in a dispatch quoted "knowledgeable sources" as saying the radiation leak was detected between the end shield and calendria and it might take 6 months to one year to repair it. The leak was detected about a month ago. "The approach to the leakage site is very difficult," these sources told the agency. The heat exchange tubes of unit two were also badly leaking and need urgent replacements. This unit had also since been shutdown. The leak in unit one had been caused by injudicious operation of the reactor as a good percentage of its leaking moderate heat exchange tubes are plugged, the agency further quoted the sources as saying. [Text] [BK261558 Hong Kong AFP in English 1021 GMT 26 Oct 81]

CSO: 5100/2029

MOTIVES FOR ACCEPTANCE OF SAFEGUARDS EXPLAINED

Buenos Aires CLARIN in Spanish 20 Oct 81 p 8

[Article by Oscar Raul Cardoso: "A Process of Change--Argentina and the Safeguards"]

[Excerpt] The Swiss Sulzer enterprise has begun shipments of material intended for the heavy-water production plant to be built at Arroyito, Neuquen, it was confirmed to CLARIN with evident satisfactions by sources in the CNEA (National Atomic Energy Commission).

This information came almost immediately after the announcement--in Vienna, last week--that Argentina had agreed to place the installations of that plant under the safeguards of the IAEA.

Concerning this international commitment assumed by Argentina, CNEA sources explained that it is "clear evidence that Argentina's nuclear program is designed exclusively for peaceful purposes."

The sources also noted that acceptance of safeguards for the heavy-water plant "does not in any way conflict with the objective of preserving the independence of nuclear development since, in the case of the Arroyito plant, the thing that is placed under safeguards is the new technology actually received."

Both steps--the start of Swiss shipments and the signing of the safeguard agreement --are part of a process of Argentina's nuclear policy adjustment which must be in line with new international conditions; this is why it is a good idea to explain some points.

Fuel Cycle

With the incorporation of technology for the production of heavy water, Argentina will close the fuel cycle necessary to supply the nuclear power plant at Atucha and the two currently under construction (Rio Tercero Dam and Atucha II).

Heavy water is the element that moderates the reaction in reactors which--like those of Argentina, operate on the basis of natural uranium. The zircalloy pipes (or shields), which are used as containments for the fuel element, constitute the third step that closes the cycle and its production is accomplished according to a technology which Argentina already has.

The award of the construction contract for the heavy-water plant was given to the Swiss within the same "package" of projects that included the future nuclear power plant at Atucha II; it will use a reactor based on German technology (KWU [Power Plant Union]).

At the time, the decision made by the national executive--for which the CNEA acts as advisory body--was cause for criticism because the purchase of the plant from the Swiss was handled according to the system known as "turnkey"; this was done to the detriment of a Canadian offer from a country whose technology in producing heavy water is of recognized perfection.

Regarding the safeguards, Argentina agreed to negotiate them within the IEAE only after making it clear that country would not sign the NPT, an agreement which it considers to be discriminatory against the developing countries. While negotiations were already in progress, authorities and the CNEA made it known that many of the demands made by the IEAE--upon the urging of some of its members, such as the United States would continue to be "unacceptable" to the interests of Argentina.

This is why the announcement, last week, did not fail to cause a certain amount of surprise among observers.

Reasons

To understand this acceptance of the safeguards--CNEA sources assured us--one must keep in mind that "the thing that is placed under the control authority of the IEAE is exclusively the plant at Arroyito."

"On repeated occasions," he added, "Argentina has expressed its readiness to place the new technology which is in effect transferred to it under safeguard. The same is not true of what is produced here, or in the case of the promises that are usually made by the nuclear power and that are then not kept."

To these considerations by official sources we must add the fact that conditions on the international market, in which Argentina operates as the purchaser of technology and installations, are changing especially now that Ronald Reagan is in the White House.

In this context it is not inexplicable that Argentina is prepared to adopt decisions which, at another time, it tried to avoid, to say the least, which, as admitted by CNEA sources can include, even before the end of this year, the ratification of the Tlatelolco Treaty (prohibiting nuclear weapons in Latin America).

5058
CSO:5100/2024

CEARA MAY BE SITE OF TWO NUCLEAR PLANTS; RISING COSTS

Cals Explains Plan

Rio de Janeiro JORNAL DO BRASIL in Portuguese 20 Oct 81 p 18

[Text] Brasilia--Minister of Mines and Energy Cesar Cals said that Plan 2000 for projects in the electrical sector, which is in the final phase of preparation by an ELETROBRAS [Brazilian Electric Power Companies, Inc] taskforce, could include two nuclear powerplants of 1.3 million kilowatts each in Ceara if he were to request it.

He said: "Since the transfer of nuclear technology requires the construction of eight nuclear powerplants, why not build two of them in Ceara if the demand justifies it?

Nuclear Complex

He believes that the power from the two nuclear powerplants should be consumed by the uranium enrichment complex which he seeks to have built in his state and also by the regional market, which shows rates of growth higher than the national average at this time.

He revealed that his initial recommendation to PETROBRAS [Brazilian Petroleum Corporation] was that studies be made with respect to having two nuclear powerplants of 600,000 kilowatts each constructed, but the state agency arrived at the conclusion that just to supply the uranium enrichment plant (a uranium concentrate plant with a capacity for 3,000 tons per year and an enrichment capacity of 3 million Separative Work Units per year) the demand would be 1 million kilowatts firm, which means more or less the capacity of a 1.3 million kilowatt nuclear powerplant.

With that total commitment of one entire nuclear powerplant for the nuclear complex, the minister began to believe in the possibility of scheduling two nuclear powerplants of 1.3 million megawatts each for the state. The second powerplant would be justified, not only by the normal demand of the system, but also to insure the uninterrupted operation of the nuclear complex in case of a stoppage for maintenance or the loading of new fuel in one of the powerplants.

Weak Market

Cesar Cals also argues that power consumption in the southeast region is openly declining to the point that even hydroelectric powerplants in the region are being postponed or their work slowed. He cited the fact that Fortaleza is the hub of the electrical system and that there is the technical need for the existence of a large power generating plant for the stabilization of voltages, synchronization, and so forth.

He also revealed that all the eight powerplants included in the nuclear program will be programed within Plan 2000. With respect to the fact that the market is growing at a slower pace than was expected, which could justify the reprograming of the powerplants, the minister said that by programing them for the year 2000, ELETROBRAS is placing the nuclear program in that new situation of the market because the eight units were originally programed for 1990, subsequently postponed to 1995 and now to 2000.

Expensive Processing

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 6 Oct 81 p 33

[Text] The processing of uranium from the Itataia deposit in Ceara, the largest in the country, could cost $120 million if done at Bahia, however, because of the solution adopted with the construction of an industrial complex which includes a nuclear powerplant for supplying power, its cost is calculated at nearly $5 billion. The supply of water--one of the greatest problems for the operation of the manufacturing complex--was discussed informally among technicians of the Ministries of Mines and Energy and of Interior, the subject being the rerouting of the San Francisco River, which crosses the state of Pernambuco and a large part of Ceara. Among the political aspects which emerged in discussing the question, the one of most importance was the idea that "the uranium of Ceara will never be processed in Bahia."

Revealing that information in Rio yesterday, technicians of the nuclear sector added that the Itataia industrial complex will be installed in two phases: the first in the second half of 1983, with the installation of a pilot unit to develop the process of production of yellow cake, remaining in that phase for one year. The second phase would be around the middle of 1985 when production on an industrial scale would begin, taking from 5 to 6 years for completion. Total time for the undertaking to begin operations is foreseen as between 8 and 9 years.

Costs

The pilot unit and the industrial complex will cost, according to the technicians, $600 million at today's prices, including the operational infrastructure (railroad, roads and others) valued at $200 million. In addition to the $600 million, another $3.5 million will be spent in the construction of the nuclear powerplant which will provide the power for the manufacturing center (consumption will be 220-MW per hour). The complex is going to produce phosphate, phosphoric acid and uranium concentrate. The phosphate is associated with the uranium and the separation of the two requires sophisticated equipment and up-to-date technology.

The Other Solution

The same technicians revealed that the first solution, considerably more economically viable, would allow the processing of Itataia uranium for only $120 million. That is how the initial project was conceived: one unit would beneficiate the uranium once it was extracted from the deposit and then the product would be carried by a pipeline to the port of Fortaleza (Itataia is 220 kilometers from Fortaleza). From there the uranium would be shipped to the port of Aratu in Bahia, 25 kilometers from Camacari, where at the Caraiba Metais plant [PETROBRAS Chemical Corporation] it would be processed and the phosphate separated. A unit would be built at the site for the production of one ton of uranium concentrate per year.

The costs would be distributed like this: the Itataia beneficiating plant and the pipeline to the port of Fortaleza would cost $70 million; the pipeline between the port of Aratu and Camacari and the uranium concentrate plant would cost $50 million.

The technicians do not deny that the Itataia industrial complex will be economically viable because of the uranium and the phosphate, however, "it would be infinitely more viable if the first proposal were accepted." On the international market at this time, a ton of uranium concentrate costs $50,000. For each ton of uranium concentrate, 150 tons of phosphate are obtained. Phosphate on the foreign market costs $82,500 per ton. With the production of 3,000 tons of uranium concentrate per year (the production forecast for Itataia) in 40 years the 122,500-ton reserves of the deposit will be exhausted.

Water

The Itataia Complex, say the technicians, will need 50 million cubic meters of water for operating. The water will be stored by means of the construction of gigantic dams and will come from the 15 days of torrential rains which fall in the region per year. The dam will hold 50 million cubic meters because it happens frequently that it does not rain for two or three years in a row. Thought was given to drawing water from underground sources but the research and the equipment to be installed in several wells would be too expensive.

8908
CSO: 5100/2027

FRG DEPUTY STATES NUCLEAR AGREEMENT IS GUARANTEED

Rio de Janeiro O GLOBO in Portuguese 27 Oct 81 p 22

[Text] Bonn--Deputy Walther-Leisler Kiep, member of the Christian Democrat Union (CDU), the opposition party, said yesterday that the execution of the Brazil-Germany Nuclear Accord is already guaranteed and that the powerplants should be ready within 3, or at the most, 5 years.

Kiep, who next year is going to run for the prefecture of Hamburg, visited Brazil last week on his own initiative to establish new lines for the policy of economic cooperation of his party.

Returning Sunday night, he declared that he was able to confirm, after the talks he had with officials of the government and the economic sector, that there is no longer any political resistance by the Brazilians to the construction of the atomic powerplants contained in the agreement.

"The construction of the next three powerplants will take place without any reaction," he said.

The German politician liked what he saw in terms of raw materials very much and he advocated a more intensive economic cooperation between the two countries. According to him, Brazil would be willing, unlike other countries, without any nationalistic restrictions, to export an "almost unlimited" quantity.

In the case of raw materials, he referred particularly to uranium and the new reserves discovered, which are of "an especially high quality." In this deal Kiep believes that West Germany could only win because it would reduce its dependence on some countries in obtaining that raw material.

8908
CSO: 5100/2027

NUCLEAR KILOWATT TO COST $2,070 SAYS NUCLEBRAS

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 7 Oct 81 p 30

[Text] NUCLEBRAS [Brazilian Nuclear Corporations] reiterated yesterday that the cost per kilowatt installed in the nuclear powerplants will be $2,070. This is being questioned by technicians of the sector. Even so the company promised to reveal the latest figures today on the structure of the costs of those units.

The information the agency has provided is that the overall cost of $2,070 results from $1,500 in direct costs and $570 in indirect costs. According to those calculations, the costs of the Angra II and Angra III will be $2.69 billion each.

The various attempts to have the subject clarified in all its aspects in official circles had no effect. The president of the NUCLEBRAS Nuclear Powerplant Construction Corporation (NUCON), Emilio Claudio Leme, said (through his secretary) that he can only make explanations on the subject "with the approval of the public relations section." The same thing happened with the president of NUCLEBRAS Engineering, Inc. (NUCLEN), Ronaldo Fabricio.

NUCLEBRAS public relations officer Cesarion Praxedes, however, was on a trip supervising filming of the installations of the nuclear fuel cycle, returning to the agency late in the afternoon. His deputy, Eduardo Pinto, is on a trip and without the presence of the two, no official will talk to newsmen.

Image

The filming of the uranium concentration plant, which Cesarion Praxedes supervised in Pocos de Calda, and of the fuel element plant (FEC) in Resende, is for the purpose of "improving the image of NUCLEBRAS in the future," declared an official of one of the company's subsidiaries yesterday. In one or two weeks the films will be shown on a television network and the main theaters of Brazilian capitals, showing "the effort and the scope of the work of NUCLEBRAS," added the official.

Itatai

The problem of a water supply for the uranium complex of Itataia, where the largest reserve of uranium in the hemisphere is located, is practically resolved: bids for the construction of Serrote Dam, which will provide all the water required for the complex, are being presented, with the results becoming known in coming days. The information was provided yesterday in Fortaleza by the local manager of NUCLEBRAS, Geologist Geraldo Jose Aires. He added that "the topographic study of the region where the pilot plant for beneficiating uranium is in a very advanced phase."

Although the dates for the beginning and conclusion of the undertaking have not yet been established, the manufacture of the first "yellow cake"--as the concentrates of uranium oxide which will be produced at Itataia are called--is foreseen in 1982. The national budget for next year already includes the money allocated for the construction of the experimental plant but the technicians could not say exactly how much money has been budgeted for the construction of the pilot plant.

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CSO: 5100/2027

NO PRECAUTIONARY MEASURES FORESEEN FOR ANGRA I POWERPLANT

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 10 Oct 81 p 31

[Text] The president of the National Nuclear Energy Commission (CNEN), Professor Hervasio de Carvalho, declared in Rio yesterday that reports on damage in 46 American powerplants are "nonsense" by the press, which is not going to change the importance of nuclear power in the world. He explained that he will take no precautionary measures with respect to the reactor of the Angra I powerplant "because all its equipment was already tested in the United States."

Hervasio de Carvalho said that cracks in reactor vessels have already been confirmed in other countries, citing France and Argentina as examples. In Argentina, he said, small cracks were confirmed in the pressure vessel of the Atucha I powerplant, "without major problems for the future."

The CNEN president pointed out that the Angra I reactor vessel was subjected to blast furnace tests "which demonstrated that the material was very good in terms of quality." As far as he is concerned, because of that "there is nothing more to be discussed." He said that within the reactor vessel there are "test samples" which are periodically removed for laboratory analysis and an evaluation as to how the material is withstanding radiation.

Asked about the possibility that the steel used in the vessels in American reactors with problems also being used in the Angra I reactor vessel, Hervasio reacted by saying: "That is a problem of the United States." He became irritated, trying to interrupt the interview when he was reminded that the Angra I vessel was made by Westinghouse, the same company which built vessels and reactors with problems in several powerplants in the United States.

In answer to a new question as to whether there would not be a quality control review at Angra I because of the difficulties confirmed in American powerplants, the CNEN president did not concel his indignation: "That will do no good. We are not going to engage in nonsense. The dogs and jackals bark but the caravan passes." As for the repairs in one of the 46 powerplants with problems in the United States (Indian Point-2) which will cost $100 million, the incident was minimized by the professor: "That is something else that happens rarely."

Certificates

The CNEN president delivered certificates to the first three independent nuclear technical supervisers of Brazil yesterday. They belong to the Brazilian Institute of Nuclear Quality. They are Engineers Claudio Bittencourt de Campos, Paulo Bandeira de Carvalho and Claudio Bueno Guerra. On the occasion, the professor made a defense of "nuclear safety" emphasizing that the basic objective is the reduction "of danger as much as possible." He pointed out the imperious need for quality of materials in the nuclear sector as a "form of affirmation of national prestige."

No Time

The president of FURNAS [Brazilian Powerplants], Licinio Seabra, scheduled a press interview for 1400 yesterday to discuss all subjects having to do with Angra I. However, at the time of the interview, he sent one of his aides to apologize to the newsmen because he did not have the time "to talk to them."

8908
CSO: 5100/2027

NUCLEAR ENERGY USE IN INDUSTRY, MINING, HEALTH DISCUSSED

Santiago LA NACION in Spanish 23 Oct 81 p 8A

[Text] Our country is in a position to apply atomic energy in industry, mining and health, depending on the needs of these sectors and the government's decisions in this regard. In any case, the National Energy Commission is ready to proceed with the use of this energy source.

This was reported by the executive director of the Chilean Nuclear Energy Commission, Col Juan Bautista Mir Despouy, in his analysis of the 16-year history of that commission.

If our level of nuclear energy development is compared with that of other Latin American countries, "rigid parallels cannot be established," said the executive. In the specific cases of Brazil and Argentina, he said, "these are two nations that have many years of experience in research and the practical utilization of the resource."

At the same time, there is a great variety of fields in which nuclear energy can be of use, which implies a division of the levels at which comparisons can be made.

If the use of atomic energy in the production of electricity is analyzed, "our country is at a level where up-to-date studies are available for any decision the government may adopt for the incorporation of this resource in national development."

Different Situations

In the cases of Argentina and Brazil, indicated Col Juan Mir Despouy, the situations are different as far as the production of electricity with atomic energy is concerned.

Argentina must develop atomic plants for the production of electrical energy, because it does not have sufficient hydroelectric resources. In this regard, Chile does have sufficient resources, both renewable and non-renewable, to produce electricity.

Brazil is in a similar situation, in that it also needs atomic plants because of its vast territory and the paucity of natural sources of electrical energy.

In nuclear medicine, our country is at the forefront of other nations. There are many radiodiagnosis centers in Chile. Since 1972, remarkable progress has been made in both the public and private sectors.

As for mining, Chile is also in a very good position, considering that we are a mining country par excellence. The Chilean Nuclear Energy Commission is providing strong technical support for improving mining processes in the country.

Agroindustry

With regard to applications in agroindustry, our country is also in a favorable position. Many studies and research projects have been conducted in this field. All techniques and measures are at the users' disposal, and can be utilized at any time.

All nuclear reactors, without exception, are subject to international safeguards through the International Atomic Energy Organization, and are normally inspected according to how much atomic fuel they use. Thus, proliferation can be prevented and controlled, and health-threatening leaks can be avoided.

Lt Gen (R) Herman Brady Roche, chairman of the Board of Directors of the Chilean Nuclear Energy Commission.

8926
CSO: 5100/2022

STUDY EXAMINES POTENTIAL FOR NUCLEAR PROGRAM

Beirut AL-SAFIR in Arabic 20 Sep 81 p 14

/Article by 'Adnan Mustafa: "A Comprehensive View of the Unified Arab Nuclear Fuel System"/

/Text/ In the past years - 1970, 1975 and 1980 - the Arab world consumed the following quantities of electricity: 29 trillion watt-hours, 43 trillion watt-hours and 85 trillion watt-hours respectively. These quantities were consumed in the eastern and western areas alike. It is expected that electric generating capacity will rise from 28 gigawatts in 1980 to 65 gigawatts in 1990, then to 120 in 2000. Hydroelectric power is expected to rise to about 8 gigawatts by the end of this century. The joint Arab nuclear power project can start actual production in the mid-nineties, that is, when the method for generating by means of petroleum products, oil and gar starts /sic/.

On the basis of the foregoing, and on the basis of Arab uranium reserves, the Arab world can preserve a high degree of independence in this field, especially if a united Arab organization is established to produce nuclear fuel. This study shows the time period the Arab world will need in order to produce nuclear power from the 20 proposed nuclear plants by the end of the century.

The whole world is suffering from the specter of a punishing international energy crisis. Most industrial countries have resorted to starving their economic development plans as well as plans to raise the population's economic standard of living in order to acquire more oil at reduced prices. It is clear that the disorganized spread of oil consumption and the rise in the rate of consumption have hastened the approaching depletion of this source of energy, which is expected to occur in the next 3 decades. In another area, most developing countries in the world will be facing a crisis in the depletion of the sources of existing energy in their territory. These countries will enter the first decade of the 21st century empty-handed, except for some remaining sources of energy which will be encumbered with the burdens of projects for secondary energy production. Studies show that the developing countries' constant desire to seek new ways of producing energy such as by nuclear power, always faces attempts at obstruction from the major nuclear countries, which managed to mobilize the nuclear power they need a long time ago.

In any event, the specter of the constant fear of complicated problems related to the transfer of nuclear technology has not prevented some developing countries such as Brazil, India and Pakistan from taking practical steps to build their own nuclear power generating plants. Rather, to the opposite, these complicated problems have helped give some developing countries a picture of the future that encourages them to meet their aspirations to acquire greater electric power.

Since the Arab world is part of the developing world, it is facing the same problem and is thinking of crystallizing its needs in various ways. In the mid-seventies, some Arab countries expressed an actual desire to possess nuclear technology, and it is expected that this desire, as well as Arab need for nuclear power, will make it necessary to produce 20 gigawatts of electric generating capacity, which will basically rely on the Arab nuclear power projects organized a year ago.

In the light of experience which has taken form in the world following the emergence of nuclear industries, the degree of stability of any nuclear project is considered subject to numerous practical items of evidence, including, for example, the newness of the nuclear project, the type and mode of operation of the generating reactors used, and the effect on uranium requirements. There is supposed to be a total division and independence between the issue of the supply of uranium ore and the effectiveness of the source of the atom, the oil relied upon /sic/.

Studies have recently showed that the uranium reserves in the Arab world come to about 60,000 tons while it is possible to produce about 3.6 million tons of uranium from wastes that are seperated after producing phosphoric acid, using the tremendous volumes of phosphate reserves in Mauritania, Morocco, Algeria, Tunisia, Jordan and Syria. On the basis of all this information, there is a desire to create a unified Arab nuclear fuel system, and the hope is that this type of proposal, which is to be considered a strategic turning point contributing to supporting the Arab nuclear industry, will be realized through attainment of Arab independence of original places of uranium processing.

The Arab World's Need for Electricity

It is difficult to ascertain the unified Arab system's ability to provide fuel and to determine the amount of nuclear fuel that is needed; numerous factors together keep us from setting forth comprehensive detailed recommendations. Among these factors, for example, are the fact that the energy sector has recently taken form in the Arab world, a lack of clarity on requirements bearing on Arab energy in the limited and broad scales, and the amount of lost energy related to aspects of Arab development plans. However, some of these factors were dealt with in the seventies by some Arab thinkers, organizations and also Arab governments, and many positive recommendations were presented at the Castrap conference (Rabat, 1976), the first Arab energy conference held in Abu Dhabi in 1979, and the fourth Arab conference on primary materials held in Amman at the start of this year.

Guided by these pioneering ideas, we have decided to follow some purely experimental approaches to cover Arab energy requirements.

Based on expectations on the volume of energy consumption in 2000, as well as al-Khatib's statistical study (1980), one can state that the volume of energy required for consumption in 2000 could come to about 120 gigawatt hours per year, 8 gigawatt hours of which will be produced by hydroelectric power and another 92 of which will be produced by ordinary familiar means. We are totally confident that nuclear power will be able to produce the amount of energy required in 2000. If we take the probable development of Arab nuclear power into consideration we can anticipate greater attention to nuclear power in the Arab world in the second half of this decade. We also hope that this interest will lead to a commitment to introduce nuclear power in the period between 1985 and 2000. If matters proceed as planned after 1985, the Arab world as a whole will on the one hand, be able to operate close to 20 nuclear plants with a capacity of 1 gigawatt each in 2000, when the Arab world will know what its uranium reserves are, and on the other these nuclear plants will help the Arab world hold its oil and gas in reserve for use in other development projects.

Based on the increasing rise of nuclear power plant construction costs, the Arab world will be able to protect its tremendous savings in foreign banks from depreciating in value by developing joint Arab projects to build nuclear power plants. For example, it would have been possible to save $650 million had nuclear reactors producing 1 gigawatt been built at the beginning of the seventies. In any event, if we assume that the Arab world has undertaken to build a nuclear plant producing 20 gigawatts in the mid-eighties, that means it will be necessary to invest $25 billion between 1985 and 1995. It will be useful to recall that this amount is roughly equivalent to the value of the revenues from 40 days worth of oil exports at a level of 12 million barrels a day in 1985. In most cases one can consider that the recommendation of building a joint Arab nuclear power plant producing 20 gigawatts will be a great success, for the following reasons: first, because by the end of the 20th century it will be supplying the Arab world with a basic new source of energy, and second, because it will make it possible to satisfy the needs that are now met by burning half a million barrels of oil a day; the consumption of that sort of amount of oil will cost about $120 billion in 1985-1995 going by the oil prices that will prevail in that period.

3. [sic] The role of joint Arab nuclear power: a comprehensive view:

Most Arab countries are orienting themselves in various ways toward the acquisition of numerous forms of nuclear power industries. These countries had realized some successes by the end of the seventies. In any event, until this conference (the first Arab nuclear power conference in 15-19 June 1981), which is to be considered a sign of the start of a new era in the growth of power in the Arab world, these countries had not built what had been expected, for a simple reason, which was that they were working individually, and every country was devoting its resources to serving its interests alone. This failure was the result of two causes:

First, the nuclear power industry requires complicated technology and very great capital. No Arab country has yet been able to satisfy the simple initial economic and technological requirements for dealing with this matter.

Second, in view of the fact that the Arab countries are going through a situation where they form separate entities, all of these countries will lack the support of the oil power that exists in the region. If the countries had started thinking about nuclear projects that could have led to a state of preliminary Arab development, that would ultimately have come up against significant obstacles resembling those that have been encountered in other less complex industries.

One can consider that the first difficult lesson of the first nationwide experiment was a major failure in advancing the principles of nuclear industry in the country.

In addition, the entire Arab world, for 2 decades, has fallen behind the front line of international nuclear power development. By continuing in the same direction, one can provide an answer to all questions and proposals that might be presented in the future.

The choice of reactors:

The basic reactor in the process of nuclear power production must be considered. The reactors operating in the world at the present time use uranium for fission and uranium and thorium for splitting atoms. The nuclear fuel cycle is composed, for instance, of reactors which through fission create materials that are used as fuels in nuclear reactors; mining uranium and processing it into reactor fuel constitute the front end of the fuel cycle, and the final step consists of processes which are concerned with the storage of spent fuel and the management of waste treatment and disposal. The volume of uranium needed to produce a unit of energy differs according to the specifications of the reactors and the fuel cycle, according to the volume of U-235 that is replaced in the enrichment process, and according to the degree by which the output of the fission is moved and the degree at which the fissionable materials are replaced by the spent or reused fuel.

At the present time there are 555 commercial nuclear projects producing a total of 496 gigawatts of power distributed among 32 countries in the world. These plants are considered to be of the following types: PHW, BWR, PWR, AGR, MAGNOX and CANDU. The first three types are considered the most common in nuclear reactor markets. The choice of any of these reactor types can benefit the consumer and enable him to do without any foreign sources for financing fuel in the long range, provided these reactors operate on natural uranium and sources of uranium ore. In any event, the choice of any of these commercial types must be founded on two main considerations:

First, the Arab world's possesion of nuclear reactors, a factor which is essentially connected to volatile conditions in the Arab nation and the world. It is very important to note the competitive ability of atomic industry organizations in Canada, France, Japan and West Germany. The umbrella of this competition has opened wide, so perhaps the Arab world can proceed to demand that these countries supply nuclear reactors, as many developing countries have.

Second, the availability of the technology which basically influences the reactor's ability to function. In the realm of research into the basic reasons for the withholding or inavailability of commercial nuclear reactors, Sarry and Thomas, in 1980, made a concentrated study on the operating power of nuclear reactors in use outside socialist countries. The modern PWR and BWR reactors have shown that the capacity of reactors varies in accordance with each country that uses these types. One of the most important conclusions that Thomas and Sarry reached reveals that reactors operating at 70 percent of capacity give satisfactory results and that numerous countries have managed to achieve self-sufficiency by means of PWR reactors. Low output in BWR reactors has been observed in all countries except Switzerland.

A comparison of fuel costs based on current prices and the average cost of producing power by means of PWR, CANDU, PHW and BWR reactors on a worldwide level shows the PWR reactors' relatively superior performance from the economic standpoint. The French have managed to build LWR reactors in 6 years and thus have managed to outstrip the worldwide average, which is 12 years.

At any event it seems that the choice among various types of PWR reactors depends essentially on the newness of the type offered for sale. Nonetheless, Thomas and Serry conducted a comparison of the operating records of two types of reactors in the United States, the BWR and PWR, and made a comparison of functioning of both types in the same period. They found that the new types provide an output eight to 10 /times/ greater than what the old types offer, and the degree of difference has usually been high. This can be explained by increasing interest among American organizations and factories, and engineering design organizations, to develop reactor levels and designs to reduce the volume of equipment failure and to reduce difficulties and losses. There is a tendency in the United States to establish the anticipated level of power production of nuclear plants at 1 gigawatt in the case of PWR reactors. Therefore, the selection of this type of reactor, in the light of a 20-gigawatt production capacity in the case of the unified Arab nuclear project, cannot be a justification, at the present time at least.

Providing the Reactor

In order to provide the 20 reactors proposed to produce 20 gigawatts within the unified Arab nuclear program, three things will have to be taken into account:

First, reactors of 1 to 3 gigawatts are considered the types most suitable for the Arab world in the period 1985-2000, based on the increased demand for electricity in the Arab world in the past period. Claverie and Dupes expect that 3- to 5-megawatt reactors will be more commonplace in the first half of the coming century.

Second, in spite of the low maximum installed electric power production in the Arab world (no more than 100 megawatts), increasing attention is being given to hooking up the two systems in the western and eastern regions by increasing the maximum installed electric power production to about 400 kilowatts /sic/. If these goals are met in the eighties, the two systems will then be able to bear the load until the generation of power from nuclear plants starts.

Third, the provision of reactors could influence possible developments that can occur by chance. Roberts, in 1979, discovered a characteristic of experimentation which was that learning perhaps occurred more rapidly when one had access to more than one reactor in numerous places.

Taking the three abovementioned points into consideration leads one to the /question of/ providing the 20 proposed reactors in Morocco, Tunisia, Iraq and Saudi Arabia. Algeria can host a united Arab center for mining and processing uranium.

The front end of the nuclear fuel cycle (the nuclear fuel cycle front end -- NFC-FE):

In the first stage of the NFC-FE, it will be necessary to make a reasonable tabulation of Arab uranium reserves. Mustafa and Jasim, in 1981, recently made an investigation into this issue and produced the following conclusions:

First, the rate of investment in uranium sources amounting to about 60,000 tons comes to $90 to $100 per kilogram of uranium.

Second, one can count on an addition 3.6 million tons of uranium that can be extracted from phosphate as an auxiliary or additional source.

Third, other additional sources, such as those derived from the roots of trees, sandstone and calcium rocks, can be estimated at about 9,000 tons.

Fourth, one can consider that the process of exploring for uranium sources that took place in the Arab world in the mid-seventies was an introduction to the discovery or evaluation of future activities.

In any event, a reactor of the LWR type producing 1 gigawatt will need close to 195 cubic tons /sic/ of natural uranium per year in the complete fuel cycle and 160 cubic tons for regeneration. The proposed program could need about 59,000 cubic tons over 15 years of production and therefore Arab exploration plans must be enlisted in the service of future requirements.

One can say that a unified Arab nuclear fuel company could consolidate the exploration program as well as preparations for mining. Such a company could see the light of day by 1985, in view of the availability of Arab and Islamic monetary resources for allocation to this field. This company could assume the form of other operating joint Arab projects, such as OAPEC and /ventures in/ many other industries. One must strive to grant the company adequate authority to carry out the following tasks:

First, adopting measures that will guarantee that uranium exploration activies in the Arab world are reinforced. Aid from the Arab Organization of Natural Resources (AONR) will be of utmost importance in the early years. Here it is necessary to refer to the efforts of the fourth Arab conference on natural materials sources that was held in Amman at the beginning of this year, declaring its support for the AONR's directives and for the development of uranium exploration activities.

Second, starting to use most of the uranium reserves, beginning with Mauritania, Somalia and some other Arab countries, with the help of the Arab Mining Company (ARMICO).

Third, starting to order and acquire nuclear fuel technology under the supervision of pilot Arab nuclear centers, such as the Algerian center (the Algerian Nuclear Center for Science and Technology, CSTN).

Fourth, establishing firm relations with IAEA, the Uranium Institute and all existing nuclear fuel agencies in developing and industrial countries.

Attaining effective cooperation with some of these organizations will help integrate the unified Arab nuclear fuel cycle in a short time.

Perhaps it is unwise to be adventurous at the present time with the large amounts of money /that will be needed/ as a reserve for a consolidated Arab nuclear company, since that is to be considered outside the priorities that must be followed in this sphere. Laying stress on these priorities could require field studies that may be performed, or embarked on, by the first Arab nuclear power conference, and it will be possible to provide appropriate mutual financial support to finance the study from the Arab Fund for Social Development and Economic Development, or the Arab Bank.

Lastly, the Arab Organization of Natural Resources can keep abreast of the proposed study in the near future by itself, or in cooperation with OAPEC, as well as the Algerian Center for Scientific Studies. Here one can say that the recommendation to establish a consolidated Arab nuclear fuel cycle has started to flesh itself out. (A study presented at the first Arab conference on nuclear power, Damascus, 15-19 June 1981.)

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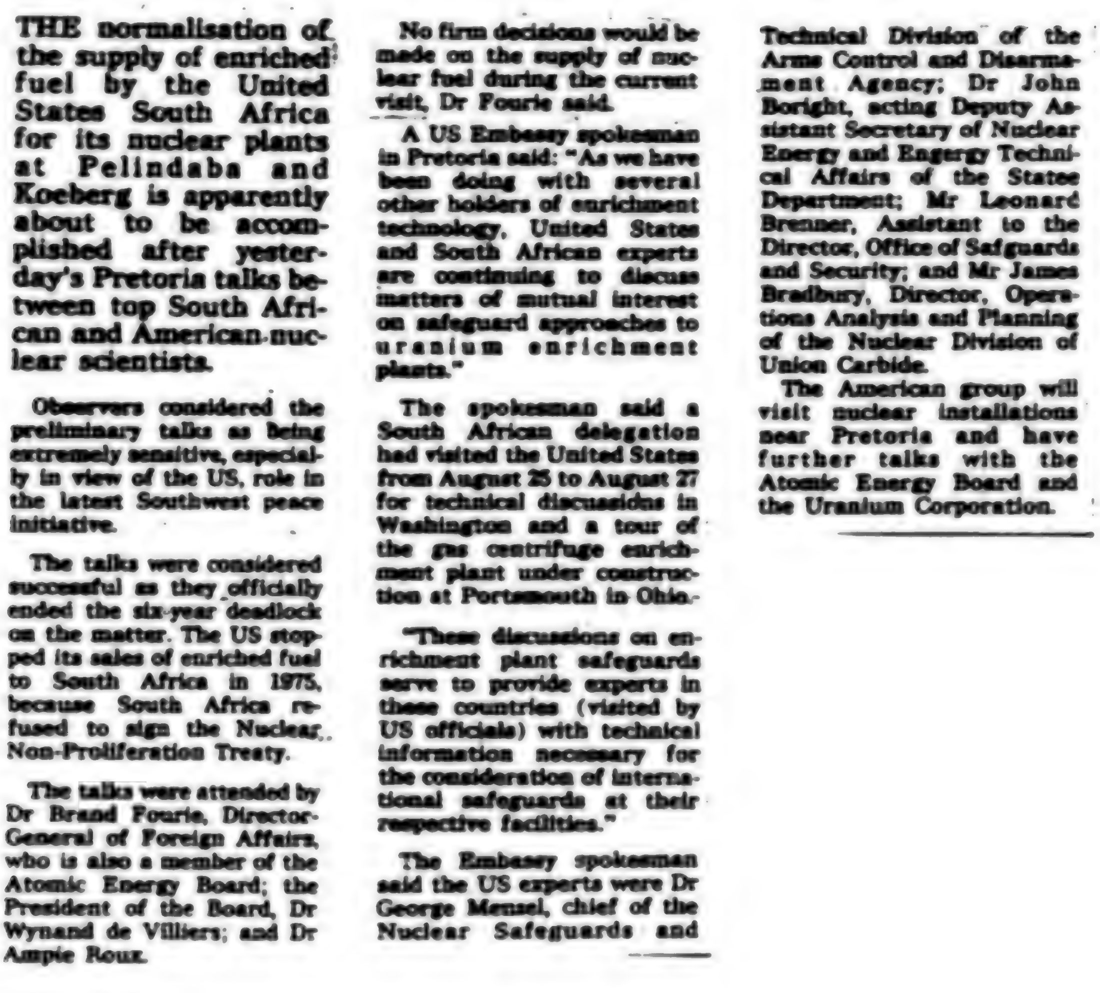
TALKS AUGUR NORMALIZED ENRICHED FUEL SUPPLY

Johannesburg THE CITIZEN in English 22 Oct 81 p 3

[Article by Jaap Theron: "Top Nuclear Talks May Unlock Supply"]

[Text]



THE normalisation of the supply of enriched fuel by the United States South Africa for its nuclear plants at Pelindaba and Koeberg is apparently about to be accomplished after yesterday's Pretoria talks between top South African and American nuclear scientists.

Observers considered the preliminary talks as being extremely sensitive, especially in view of the US, role in the latest Southwest peace initiative.

The talks were considered successful as they officially ended the six-year deadlock on the matter. The US stopped its sales of enriched fuel to South Africa in 1975, because South Africa refused to sign the Nuclear Non-Proliferation Treaty.

The talks were attended by Dr Brand Fourie, Director-General of Foreign Affairs, who is also a member of the Atomic Energy Board; the President of the Board, Dr Wynand de Villiers; and Dr Ampie Roux.

No firm decisions would be made on the supply of nuclear fuel during the current visit, Dr Fourie said.

A US Embassy spokesman in Pretoria said: "As we have been doing with several other holders of enrichment technology, United States and South African experts are continuing to discuss matters of mutual interest on safeguard approaches to uranium enrichment plants."

The spokesman said a South African delegation had visited the United States from August 25 to August 27 for technical discuasidns in Washington and a tour of the gas centrifuge enrichment plant under construction at Portsmouth in Ohio.

"These discussions on enrichment plant safeguards serve to provide experts in these countries (visited by US officials) with technical information necessary for the consideration of international safeguards at their respective facilities."

The Embassy spokesman said the US experts were Dr George Mensel, chief of the Nuclear Safeguards and Technical Division of the Arms Control and Disarmament Agency; Dr John Boright, acting Deputy Assistant Secretary of Nuclear Energy and Engergy Technical Affairs of the Statee Department; Mr Leonard Brenner, Assistant to the Director, Office of Safguards and Security; and Mr James Bradbury, Director, Operations Analysis and Planning of the Nuclear Division of Union Carbide.

The American group will visit nuclear installations near Pretoria and have further talks with the Atomic Energy Board and the Uranium Corporation.

CSO: 5100/5604-E

NUCLEAR PLANT TO PLACE WASTE FILTER MASSES, PARTS IN SEA

Stockholm SVENSKA DAGBLADET in Swedish 17 Sep 81 p 7

[Article by Dag Bjerke: "Undersea Silos for Nuclear Power Waste"]

[Text] The nuclear power industry will bury radioactive filter masses and components from Swedish nuclear power plants 50 meters below the bottom of the sea outside Forsmark.

This is not where the spent nuclear fuel is finally to end up, however--that question is far from decided.

The final storage place now to be blasted out 1,300 meters northeast of Stora Asphallan outside Forsmark nuclear power plant will finally handle the circa 90,000 cubic meters of waste which will originate in the operation of allnnuclear power plants in the country.

The waste consists of polluted filter masses used to purify the water circulating in the reactor. The dirt attached to it is radioactive and must be shielded from the world.

Further, there are worn out components; boxes to hold the nuclear fuel in place in the hearth, control rods to control the nuclear reaction, and other things that must be replaced at intervals of 5 to 10 years.

All this must first be encapsuled in concrete or barrels of asphalt, to be sent 50 meters down into the rock below 6 meters of water.

The water depth of 6 meters was selected because it corresponds to the natural rise of the land in a period of approximately one thousand years--just the length of time thought necessary to keep the storage pits well separated from the atmosphere. After that time most of the radioactivity has worn off.

The power industry, which presented these plans to a symposium on reactor waste in Goteborg from Monday to Wednesday, has also mapped the rock strata under the water with the idea in mind of later developing this storage place for the purpose of handling radioactive grinding wastes when all of Sweden's 12 reactors have been in service through the year 2010.

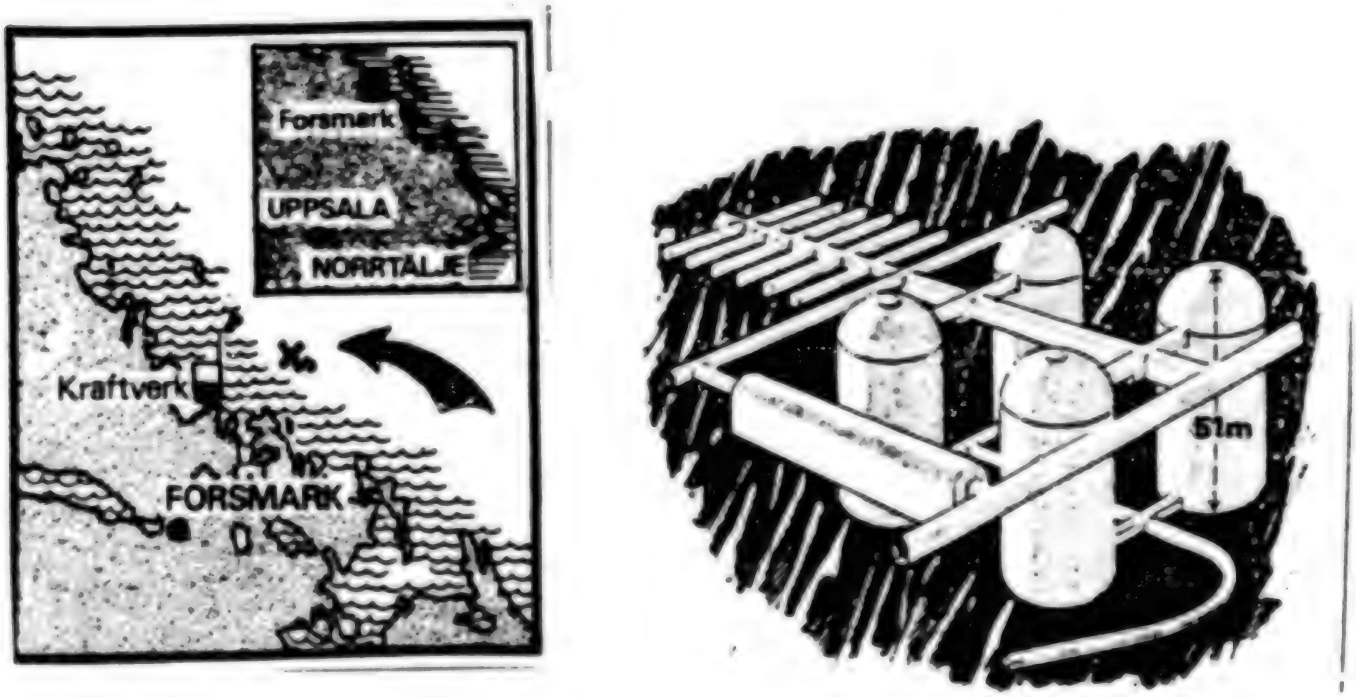
Containers Cracked

At the symposium the problems were reported which the Oskarshamn plant had encountered at the first reactor with this type of filter mass during its first 6 years of operation, 1972-1978.

Too much water in the "grout' made it swell so much that in several cases it burst the concrete containers in which it was contained.

The mishap affected 50 to 100 cubic meters of waste matter. The ruptured and cracked vessels have now been enclosed in steel containers, and a number of such steel containers are kept in the event that more of the old containers should begin to crack. The power production industry now thinks it has solved the problem of fermentation, which has engaged the attention of an inner circle of nuclear power experts during the late 1970's. A new method of reducing the risk of swelling and volumes of filtering masses was also presented during the symposium. The planned reactor waste storage site may be completed in 1988. Construction costs are estimated at 600 million kronor and operation cost at a total of 400 million.

During the construction period there will be jobs for 50 rock workers and at the most, in 1987, for over 200 concrete workers. The operation will employ 25 persons.



In the Forsmark project radioactive waste from the nuclear power plant will be stored in enormous concrete silos to be blasted out of rock 50 meters below the bottom of the sea (at the X on the map) northeast of Stora Asphallan. The waste will be carried there through a 1400 meter long underground tunnel. 1) Power plant.

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DEBATE CONTINUES ON BUILDING NEW NUCLEAR POWER PLANT

Hamburg DER SPIEGEL in German 12 Oct 81 pp 210,212

> [Text] Because of stubborn resistance by the public, the energy industry wants for the first time to give up on construction of a nuclear power plant — but only if the state pays compensation for the outlays made so far.

Nuclear power plant opponents from northwestern Switzerland warned the government in Bern that construction of such a plant on the Rhine [River] at Kaiseraugst, 10 km west of Basel, could go through only "with massive police protection," not to mention "use of the army."

Some politicians share this view: As long as 2 years ago, the National Council — predominantly in favor of nuclear power — for the same reason called on the government in Bern to study the financial consequences of giving up on Kaiseraugst.

In the summer, shortly before the end of the approval process, members of parliament wrote to Bern that "a yes to Kaiseraugst by the Federal Council (the government) would be so politically inflammatory that the consequences for domestic policy would be incalculable."

To be sure, the consequences are also incalculable if Switzerland waives construction of this reactor. In that case there would not necessarily be the threat of civil disobedience with mass tax rebellions and refusal to serve in the military, let alone violent opposition, but there would indeed be a raid on the federal treasury.

This is because the Kaiseraugst Nuclear Power Plant AG [Inc] — an amalgamation of 10 Swiss and 2 German partners (Baden Works AG and Rhenish-Westphalian Electricity Works AG, each with 7.5-percent shares), as well as 1 French partner (Electricite de France, with 20 percent) — wants to let the project be bought out: the greater the speed and the higher the price, the better: Public opposition has become too deep-seated for the companies.

For more than 10 years now, the people living around Basel, in upper Alsace and southern Baden have been resisting the nuclear power plant on the Swiss side of the border. Kaiseraugst — like Wyhl for the residents of Baden — has long since become a symbol of the battle against big technology and gross waste, destruction of the environment and the dangers of radiation.

The voters in the cantons of Basel-Stadt [urban] and Basel-Land [rural] even bound their authorities by law to oppose all nuclear installations on their own territory and its surrounding areas. This protest, supported repeatedly through construction site takeovers and plebiscites, wore down the nuclear industry.

They could not knuckle under publicly, however, for in the interim they have spent more than a billion francs on the 925-megawatt nuclear reactor — blindly, i.e., solely on the basis of a site permit.

Kaiseraugst's Director Ulrich Fischer needs construction authorization from the Federal Council to obtain the largest possible amount of compensation; only then is he willing to declare that public opposition has made construction impossible.

Then again, Fischer might not want to remain totally silent about his willingness to pull out, because then he would have to fear that the federal government might feel constrained simply to deny a need for electric power from Kaiseraugst — a circumstance that would preclude any construction authorization and could mean the end of additional nuclear power production in Switzerland.

Nor did Energy Minister Leon Schlumpf want to obstruct the future of nuclear power, so he went along with Fischer's game of poker: He was hoping to force a voluntary withdrawal by the Kaiseraugst AG by imposing additional safety conditions and stringent emergency warning plan regulations. But Fischer swallowed all of the new conditions.

In a second phase of negotiations conducted in strict secrecy, Fischer offered to waive construction if he could be assured of compensation — allegedly between 600 million and 800 million francs. Minister Schlumpf was forced to pass, noting that he had no legal grounds for making such a promise, this being the prerogative of the Federal Court.

When the negotiations then broke down, the Bern government made up its mind to end the on-again/off-again situation and come to a decision. But it never came to that, for only 3 days before the decisive cabinet meeting, the Kaiseraugst AG suddenly started the million-franc roulette game all over again with a letter.

In his four-page message, Fischer reiterated his request for construction authorization, confirmed the failure of the waiver negotiations -- and surprised the government with the announcement that he now intended to negotiatiate on withdrawal directly with the parliament.

"This floored the Federal Council," said an insider in describing the effect of the letter. The ministers took Fischer's new offensive to be an attempt to put pressure on them: Because the manufacturers of nuclear power were apparently less interested in the construction of their power plant than in exorbitant compensation, they were now counting on the parliament, where energy industry boards of directors are especially heavily represented.

Instead of saying yes to the need, thus to the construction authorization itself, and passing the Kaiseraugst case on to parliament (which has the final say under Swiss nuclear law), the Federal Council declared itself unable to issue a construction permit to the Kaiseraugst AG — which it actually was obligated to do, since it feels there is a demonstrated need for a 1,000-megawatt nuclear reactor in the 1990's.

According to Minister Schlumpf, the applicants were invited to submit to the Federal Council an explicit waiver offer that could be passed on to parliament.

Total perplexity was the result of this "smoke bomb" (as the Zurich TAGES-ANZEIGER called it): Fischer felt tricked; according to a deputy, there was "head-shaking, nothing but head-shaking" in parliament, which had just convened in Bern; opponents of nuclear power stormed that the government was holding resolutely to its nuclear policy, while proponents of nuclear power complained of the Federal Council's "weakness in making decisions."

In the meantime, it is dawning on many a Swiss citizen that their government acted rather cleverly with its oblique "nondecision" (according to Kaiseraugst's Fischer): By virtually forcing the Kaiseraugst AG to submit a waiver offer, it does not need to issue a construction authorization.

It thereby gains time and possibly avoids the danger either that parliament, with its numerous representatives of the energy industry, will approve the construction decision purely to spite the Swiss in the northwestern part of the country, or that the Kaiseraugst AG will receive generous compensation.

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CSO: 5100/2021

BRIEFS

URANIUM DEPOSITS--Sebinkarahisar (Giresun), 27 Oct (AA)--Rich deposits have been discovered in Sebinkarahisar, near Giresun by a group of scientists from the Middle East Technical University and the state-run organization "Institute of Metal Researches." Sebinkarahisar deposits constitute 80 percent of uranium deposits in Turkey, university sources said. [Text] [Ankara ANATOLIA in English 1150 GMT 27 Oct 81 TA]

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